

Flying westward.—Griffin Station, Indiana, 12th; Guttenburg, Iowa, 11th, 26th; Yates Centre, Kansas, 24th.

Brents flying northward.—Indianola, Texas, 1st; West Leavenworth, Kansas, 26th.

PRAIRIE AND FOREST FIRES.

Galveston, Texas.—Reports from Temple, Bell county, state that on the morning of the 23d an extensive fire was raging among the cedars at the falls on Leon river, which threatened to destroy the greater part of the timber in that section.

Limona, Hillsborough county, Florida.—From the 7th to 10th the atmosphere was filled with smoke from forest fires. Much fencing and grass and many trees were destroyed.

Andersonville, Sumter county, Georgia.—On the 11th the atmosphere was filled with smoke from forest fires.

Fort Smith, Arkansas, 29th.

Cedar Keys, Florida, 10th.

Cantonment, Indian Territory, 28th.

Fort Stockton, Texas, 17th, 18th, 26th.

Indianola, Texas, 15th, 24th, 25th, 26th.

DROUGHT.

Reports from Pensacola, Florida, on the 13th, stated that rain was much needed in that vicinity. The interests most affected by the drought were those of the lumber dealers, who were unable to float their stocks of logs to the Gulf on account of the low stage of water in the neighboring streams.

WATER SPOUT.

On February 19th the schooner "Three Sisters," in N. 32° 52', W. 78° 54', was struck by a water spout which carried away main-gaff, mainsail, foresail, and mast-hoops, and flattened the after hatches.

NOTES AND EXTRACTS.

REPORT OF THE MISSOURI WEATHER SERVICE, FEBRUARY, 1884.

The mean temperature during February has been 34.6 at the Central Station, which is eight tenths of a degree below the average temperature of Saint Louis. In the last forty-seven years February has been colder than in the month of February last, eighteen times; the coldest February, that of 1838, being 20.7, or 13.9 degrees below that of February, 1884.

The lowest temperature reached during the month was 3° at the Central Station. This has been exceeded many times in previous years. On February 3d, 1856, the temperature fell to -15°, and the next day it was -11°. The temperature has fallen to zero as late as March 3d (1848), and to 1° as late as March 14th (in 1867). The opinion generally entertained that the weather of last month was unusually severe is always produced by normal winter weather.

In the state the lowest temperatures have been observed in the southern and western parts. The lowest were -12° at Phelps City; -8° at Oregon; -6° at Savannah; -5° at Carthage and Centreville. The lowest at Keokuk was 2°; at Saint Louis 3°; Mascoutah, Illinois 6°; and Cairo, Illinois 12°.

The rainfall has been heaviest (over six inches) in a narrow belt stretching southward from Centreville. From this area the fall diminishes with great regularity to one inch in the northwest part of the state. The rainfall at Saint Louis has been 3.88 inches, or 1.3 inches above the average. The principal rainfall of the month fell on the fourth and twelfth of the month and was accompanied with heavy thunder. The rivers in southern Missouri were all high during the middle of the month, and this aided in the destruction caused by the floods in the lower Mississippi.

The floods caused greatest destruction along the Ohio river, where the water was higher than ever before observed, as far down as Mound City. At Cairo, seven miles below Mound City, the water was half an inch below the high-water of 1882, and four inches below that of 1883.

The following notes are taken from the station reports:

Centreville: 5th, first thunder storm of the season last night; 19th, barometer down to 28.7, looks like a storm.

Glasgow: 19th, a strange day; at 7 warm and muddy, temperature 33°; at 9 snowing and freezing; at 12 frozen hard, temperature 18°; 14 hours, sun shining; 16 hours, clear.

Chamois: from 2 hours on the 4th to 22.30 hours on the 5th, 2.77 inches of rain fell; heavy thunder and rain on the 4th; 19th, from 7 to 14 hours the temperature fell 33 degrees.

Louisiana: 19th, temperature fell 20 degrees in two hours, this fall being preceded by a thunder storm at 8.30.

Depth of snow at the end of the month: Phelps City, nw.; Harrisonville, w.; Greenfield, sw.; Ironton, se.; Saint Louis, e.; Mexico, e. and Macon, ne.; none. In the central part of the state, Chamois reports 2 inches, Lexington 0.5, Boonville 2, and Centreville, se., 0.3. Note.—The abbreviations (nw., &c.) indicate the section of the state in which the station is located.

The snow fall was 6.5 inches at Oregon and Ironton; 5.8 at Chamois; 4.7 at Boonville; 3.5 at Macon and Lexington; 3 at Greenfield; 2 at Louisiana; 1.5 at Glasgow; and 1.2 at Miami and Harrisonville.

Robins appeared at Oregon on the 25th, and cat birds at Centreville on the 28th. The witch hazel was observed in bloom at Centreville on the 23d, and the first crocus bloomed on the 28th.

FRANCIS E. NIPHER, Director.

Washington University, March 10, 1884.

The following extract is taken from the February report of the "Tennessee Weather Service," Hon. A. J. McWhirter, director:

The meteorological conditions of the month were, taken altogether, rather anomalous. The most noted features were the storm of the 19th, the cold wave and low range of temperature on the 29th, and the continued cloudy and rainy weather, making, on the whole, perhaps the most gloomy and disagreeable February on record.

The average precipitation was 8.45 inches, or 1.90 inches greater than that of the previous month, and was considerably in excess of the February mean for a number of years. A small portion of this was in snow, and in hail in some localities. The rainfall was pretty well distributed throughout the month, and there was not more than one day absolutely free from rain or snow. The heaviest fall occurred from the 5th to the 10th, inclusive, the 13th, 19th, and 27th. The day on which the greatest quantity fell was the 7th, when the fall averaged 1.38 inches for the state. The mean depth of snowfall was 3.22 inches. The heaviest fall occurred on the 27th. One or two slight falls occurred previous.

The mean temperature was 45°, or 15° 55' above the mean for January. The highest temperature was about the 11-13th, the maximum being 74°, reported from Knoxville, and was the same as the January maximum. The lowest temperature was on the 29th, and was uniform. At one station, Beech Grove, as low as 6° below zero was reported.

The feature of the month was the storm that passed over the state on the 19th. This was severe at Dyersburg, Trenton, Milan, McKenzie, Huntingdon, Waverly, Savannah, Sailor's Rest, Franklin, Ashwood, Hurricane Switch, Hardison's Mills, Florence Station, Flat Creek, Alexandria, Riddletown, Smithville, Postoria, and Grief. It was particularly severe in the vicinity of Clarksville, where the destruction to houses, fences, and timber was very great. It was also destructive in some of the central counties of the middle division. The course of the storm was from the southwest, the wind changing in a few minutes from south to southwest, west and northwest to north, and followed by a rapid fall in temperature. The wind was accompanied by hail in many places, and snow in some. There was also quite a severe storm of wind and rain on the 12th at Huntingdon, McKenzie, and Parksville; one on the 13th at Grief, Maryville, and Hardison's Mills, and one on the 14th at Flippin and Andersonville. These were destructive to fencing and timber.

The Commissioner again urges upon voluntary observers the importance of making their records full and complete. This is especially requested in the item of daily rainfall, in order to make the table of precipitation accurate. It is to be a feature of future reports, and it is earnestly desired that it shall be a record of reliable data.

The following extract is taken from the report of Prof. T. O. Mendenhall, director of the "Ohio Meteorological Bureau:"

The mean temperature for the month was more than three degrees higher this year than last, and the minimum was not as low by about four degrees, nor was the maximum as high by about six degrees.

While the range for the month was thus considerably smaller than for February of last year, the mean daily range was almost exactly the same. In fact, in the matter of temperature, the month differed but little from the corresponding period of last year.

Unfortunately the similarity did not exist in temperature alone, but in rainfall the extraordinary conditions of February last year were closely repeated and, indeed, somewhat exceeded. Although the mean rainfall for the whole state was somewhat less than that of February, 1883, being 5.52 inches against 6.49 inches for that month, the precipitation in the southern portion of the state was greater than at that time. Thus at Cincinnati the rainfall in February, 1883, was 8.22 inches, while during February, 1884, it was 8.87 inches.

The minimum rainfall observed for the month in 1883 was 4.10 inches at Sandusky, while for the same month in 1884 it was 3.03 inches in Toledo. The heavy precipitation was more localized in 1884 than in 1883. The existence of a large amount of snow, covering a frozen soil, conspired with this heavy rainfall to bring about a repetition of the disastrous floods of last year, those of the present year, however, far exceeding the floods of 1883 in magnitude and in the destruction of property. At Cincinnati the Ohio river reached its highest point on February 14, the gauge showing 71 feet, $\frac{3}{4}$ inch, and it is worthy of note that the maximum was reached on the day following the anniversary of the maximum of last year.

The overflow of the upper Ohio was much greater this year than last. In foot-notes to some of the station reports will be found recorded the dates on which the river reached its maximum stage.

In this connection it will be interesting to note the rainfall as recorded at the seven stations nearest the Ohio river. The records were as follows:

Cincinnati, 8.87 inches; Dayton, 5.67; Washington C. H., 6.32; Waverly, 6.65; Logan, 7.52; Marietta, 5.31; Quaker City, 8.19; Ironton, 5.47.

It will be observed that all are considerably above the mean of the state, except Marietta and Ironton, which were slightly below, and all more than double the normal amount for February, which is 2.51 inches.

INDIANA WEATHER SERVICE.

Monthly summary of meteorological observations for February, 1884, made at Purdue University, La Fayette, Indiana; also a review of the State Volunteer Weather Service, by W. H. Ragan, director.

Latitude 40° 27' north, longitude 9° 54' west of Washington; altitude above sea-level, 661 feet.

	Day of month.	At Purdue University.	Day of month.	In the state.
Barometer—Inches.				
Maximum height.....	15	30.526	15	30.550
Minimum height.....	19	29.412	19	29.020
Mean height.....		30.090		30.059
Monthly range.....		1.114		1.530
Thermometer—degrees.				
Maximum height.....	12	60.0	12	68.0
Minimum height.....	29	-4.0	29	-8.0
Greatest daily range.....	1	31.0	19	32.0
Least daily range.....	11	1.0	7	0.0
Mean of warmest day.....	17	40.7	12	61.5
Mean of coldest day.....	28	5.0	29	3.5
Monthly range.....		64.0		76.0
Monthly mean.....		29.5		32.4
Precipitation—Inches.				
Greatest on any day.....	12	1.39	6	3.50
Maximum.....		5.08		10.80
Minimum.....				2.50
Mean.....				5.17
Wind—miles traveled.				
Maximum velocity.....	19	32	19	60.0
Mean hour velocity.....		10.30		
Total miles for month.....		7.212		

Comments.—The average February barometric pressure, observed at Purdue University for a period of five years, is 30.206 inches, or .116 of an inch above the mean pressure for February, 1884. The highest pressure during this period, 30.789 inches, was on February 4, 1881; the lowest, 29.359 inches, was on February 28, 1882.

The average February temperature for a period of five years is 30° 6, or 1° 1 above the mean for February, 1884. The highest temperature during this period, 66°, was on February 16, 1883; the lowest, -6°, was on February 1, 1883. The warmest month, 37° 9, was February, 1882; the coldest, 24° 9, was February, 1881. The warmest day, 57° 2, was February 12, 1882; the coldest, 3° 7, was February 5, 1883. The greatest monthly range of temperature, 72°, was for February, 1883; the least, 46°, was for February, 1882.

The average February precipitation for a period of five years is 5.04 inches, or .04 of an inch below the mean for February, 1884. The greatest monthly precipitation, 7.46 inches, was for February, 1883; the least, 2.49 inches, was for February, 1880. The greatest precipitation on any one day, 2.95 inches, was February 3, 1883.

The average February wind, for a period of five years is 6,775 miles, or 437 miles less than that of February, 1884. The greatest number of miles of wind for any day during this period, 920, was on February 21, 1882. The greatest miles of wind during any month, 7,602, was for February, 1881; the least, 6,283, for February, 1883. The prevailing wind for February, 1880 and 1883, was from the southwest; for 1881, from the east; for 1882, from the south; and for 1884, from the northeast.

For the state the highest barometer is reported from Switzerland county; the lowest from Vanderburg county. The highest temperature is reported from Washington and Crawford counties; the lowest from Montgomery county. The greatest daily range of temperature is reported from Wabash and Clinton counties; the least from Wabash county. The warmest day is reported from Washington county; the coldest from Allen and Wabash counties. The greatest precipitation on any day is reported from Switzerland county. The greatest precipitation for the month is reported from Crawford county; the least from Montgomery county. The maximum velocity of wind is reported from Switzerland county.

The average maximum temperature in the southern portion of the state is 66°, for the central portion of the state 61°, and for the northern portion of the state 55°. The average minimum temperature in the southern portion of the state is 3° 0, for the central portion -2° 1, and for the northern por-

tion -2° 5. The average temperature for the southern portion of the state is 36°, for the central portion 31° 6, and for the northern portion 29° 7. The average precipitation for the southern portion of the state is 6.78 inches, for the central portion 4.48 inches, and for the northern portion 4.25 inches.

WEATHER REPORT FOR FEBRUARY, 1884.

Prepared by Prof. F. H. SNOW, of University of Kansas, from observations taken at Lawrence.

This month, although nearly five degrees colder than the February average, has been exceeded in average coldness by four Februaries in the past sixteen years, in 1874, 1875, 1881, and 1883. The minimum temperature, however, was high, having been lower in ten of the preceding Februaries. The rainfall and the humidity were nearly normal, the cloudiness was excessive, and the wind velocity was considerably above the average. The peculiar sunset after-glow of the preceding months was occasionally observed, but had apparently disappeared before the end of the month.

The following table furnishes a comparison with the sixteen preceding Februaries:

February.	Mean temperature.	Maximum temperature.	Minimum temperature.	Winter days.	Zero days.	Rain (inches).	Snow (inches).	Rainy days.	Thunder-storms.	Mean cloudiness.	Humidity.	Number of fogs.	Miles of wind.	Mean barometer.	Maximum barometer.	Minimum barometer.
1868.....	35.71	72.0	-3.0	13	1	0.19	0.56	3	1	24.71	0	0	29.097	29.623	28.636	
1869.....	30.63	66.0	-5.0	15	1	1.44	5.25	0	1	51.20	85.1	4	29.047	29.572	28.337	
1870.....	35.42	69.0	-4.0	9	1	0.03	0.00	2	0	43.69	61.0	2	29.039	29.610	28.333	
1871.....	35.30	71.5	-6.0	9	1	2.43	4.00	8	2	49.85	74.3	3	29.039	29.572	28.333	
1872.....	30.44	62.0	-12.0	10	3	0.82	7.75	5	0	54.94	70.4	3	29.048	29.588	28.419	
1873.....	30.26	62.0	-5.5	13	2	0.86	3.00	3	1	45.95	68.1	1	12.827	29.102	29.727	
1874.....	27.05	49.0	-2.0	16	0	0.95	10.00	8	1	60.94	78.2	4	9.195	29.166	29.699	
1875.....	21.92	55.0	-8.0	23	3	0.80	4.00	7	1	50.48	74.7	1	11.865	29.174	29.694	
1876.....	37.80	74.5	-5.0	12	0	0.30	0.25	3	1	38.16	59.0	1	15.236	29.135	29.667	
1877.....	39.65	66.0	-2.0	1	0	0.80	2.00	5	0	47.13	71.2	2	7.718	29.301	29.621	
1878.....	40.23	66.0	-5.5	4	0	2.86	2.50	9	1	54.63	78.5	0	7.393	29.016	29.498	
1879.....	34.09	74.0	-5.0	9	0	0.41	4.50	2	0	39.04	64.7	0	10.007	29.199	29.621	
1880.....	37.58	64.0	-8.0	11	0	0.73	0.00	3	1	24.94	64.5	1	11.861	29.125	29.733	
1881.....	25.73	61.5	-5.5	18	0	4.00	22.00	7	0	54.17	79.8	3	12.142	29.180	29.571	
1882.....	41.05	73.0	-12.0	4	3	1.66	2.00	0	0	45.49	69.7	3	11.907	29.110	29.441	
1883.....	27.92	67.0	-13.0	13	3	2.31	4.00	6	1	51.67	77.9	2	10.593	29.310	29.860	
1884.....	28.03	57.0	-1.0	16	1	1.73	2.00	8	1	54.33	72.3	1	11.742	29.158	29.460	
Mean.....	32.91	65.3	-0.3	12	1	1.31	4.34	6	1	46.55	71.8	2	11.045	29.140	29.625	

In the column of minimum temperatures a dash indicates temperature below zero. In the column of winter days is given the number of days whose mean temperature was below 32°.

THE WEATHER OF THE PAST SEVENTEEN WINTERS.

From observations taken at Lawrence, Kansas, by Professor F. H. SNOW.

The following table gives the chief characteristics of the past seventeen winters. During this period five winters have had a lower mean temperature and a larger number of zero days than the winter just closed; six winters have had a larger number of winter days, but only one has had a lower minimum temperature. The rainfall (including melted snow) has been three-fourths the average amount; the fall of snow has been slightly above the average depth; the cloudiness has been more than two per cent. above the mean; the wind has exceeded its average by more than 5,000 miles; there has been a single thunder-shower (the average number); there has been one more fog than usual, and the barometer has exceeded its average height.

Winter of—	Mean temperatures.				Min temp.	Max. temp.	Winter days.	Zero days.	Snow, inches.	Rain, inches.	Thunder st'm	Mean cloudiness.	Miles of wind.	No. of fogs.
	Dec.	Jan.	Feb.	Season.										
1867-68.....	34.50	23.67	35.71	31.29	-7.0	72.0	48	3	6.50	.....	1	.....	.....	1
1868-69.....	24.29	30.50	30.63	28.49	-16.5	65.0	58	5	25.25	6.47	1	48.11	.....	6
1869-70.....	29.92	29.43	35.42	31.59	-4.0	69.0	36	2	8.50	1.57	0	49.83	.....	7
1870-71.....	28.70	28.50	35.30	30.95	-10.0	71.5	42	8	21.50	4.26	2	54.55	.....	0
1871-72.....	24.91	24.35	30.44	26.57	-12.0	61.0	53	11	14.50	2.11	0	47.63	.....	5
1872-73.....	19.93	18.01	30.26	22.93	-26.0	62.0	61	17	30.00	4.76	1	45.78	35,293	3
1873-74.....	31.37	25.01	27.05	28.90	-2.5	67.5	49	1	21.00	7.60	3	58.70	34,652	0
1874-75.....	31.01	15.60	21.92	32.84	-16.5	55.0	72	14	11.50	2.09	1	50.77	34,364	2
1875-76.....	39.35	34.70	37.80	37.28	-5.0	74.5	34	2	0.25	4.48	3	43.16	43,057	2
1876-77.....	23.00	25.60	39.65	29.62	-9.0	66.0	50	6	14.00	2.40	0	44.60	27,959	3
1877-78.....	44.43	33.97	40.22	39.54	-7.5	68.0	15	0	3.00	8.12	4	53.19	28,042	0
1878-79.....	23.05	23.49	34.00	26.87	-16.0	74.0	54	13	25.25	2.76	0	45.59	27,502	2
1879-80.....	26.23	41.23	37.58	35.01	-9.0	67.0	36	2	3.00	4.92	2	41.75	37,543	11
1880-81.....	25.84	21.60	25.78	24.41	-12.0	61.0	54	6	24.00	5.37	0	55.62	35,995	8
1881-82.....	40.10	32.68	41.65	38.14	-5.0	73.0	17	3	5.00	3.26	0	50.82	36,259	5
1882-83.....	31.25	19.65	27.92	26.27	-14.0	67.0	57	9	14.50	4.28	1	55.61	34,366	6
1883-84.....	33.72	20.99	28.03	27.58	-21.5	63.0	50	8	16.00	3.18	1	47.33	39,790	6
Mean.....	30.13	26.64	32.91	29.90	-10.8	66.9	47	7	14.34	4.23	1	49.57	34,568	5